

Amendments to the Drawings:

The attached drawing sheet includes changes to Figure 2. This sheet replaces the original sheet. The changes to Figure 2 correct a mistake in the electrical connection in the circuit diagram. In addition to the replacement sheet, an annotated sheet showing changes in red is attached to this Amendment.

Attachments: **Replacement Sheets**
Annotated Sheets Showing Changes

REMARKS/ARGUMENTS

Claims 1-10 are pending in the subject patent application. Claims 1, 2 and 8 have been amended. Applicant respectfully requests consideration of the claims in view of the amendments made herein and the remarks provided below.

Claim Objection – Claim 2

In the February 24, 2005 Office Action, Claim 2 was objected to for a minor informality. Specifically, Claim 2 was objected to for including the extraneous word “is” before the word “unaffected” in line 12 of the claim. In response, Applicant has amended Claim 2 to correct the typographical error. In light of the correction, Applicant respectfully requests that the objection now be withdrawn.

Claim Rejections – 35 U.S.C. § 103, Claims 1 and 3

In the Office Action, independent Claims 1 and 3 were rejected under 35 U.S.C. § 103(a) for allegedly being obvious over allegedly admitted prior art in view of U.S. Patent No. 5,357,544 to Horner et al. (hereinafter referred to as “Horner et al.”) and U.S. Patent No. 6,674,812 to Stevenson (hereinafter referred to as “Stevenson”). For the following reasons Applicant respectfully disagrees.

Horner et al. discloses a method and apparatus for decoding a composite FM signal that includes a pilot signal, which is used as a reference signal in decoding the composite FM signal and separating right and left channels needed for stereo broadcasting. Stevenson discloses a modulator and demodulator that allows communications using binary frequency shift keying (BFSK) and M-ary FSK techniques.

Section 2143 of the M.P.E.P. directs that in order to make a *prima facie* case of obviousness the references (or references when combined) must “teach or suggest all of the claim limitations”. Further, Section 2143.01 directs that: “Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art.” As explained in detail below, not only does the alleged prior art fail to teach or suggest all of the claim limitations of independent Claims 1 and 3, the alleged prior art provides no suggestion or motivation to combine or modify Horner et al. and/or Stevenson with the alleged admitted prior art.

Independent Claim 1 of the present invention is distinguishable from the alleged prior art in various respects. First, as acknowledged at the top of page 5 of the Office Action, the alleged admitted prior art “is silent about processing I and Q single digital bit streams through a set of simple logic to produce a digital representation of down converted in-phase and quadrature components.” Horner et al., whether considered alone or in combination with the alleged admitted prior art, also fails to teach or suggest such subject matter. Despite what is asserted in the Office Action, the mixer 26 and reference signal generator 24 of the DSP 20 in Horner et al. whether considered alone or combined with the alleged prior art, do not correspond to “processing I and Q single digital bit streams through a set of simple logic to produce a digital representation of down converted in-phase and quadrature components.” Indeed, there is not even a remote suggestion that the methods and apparatus in Horner et al. could be used in an I/Q system. Moreover, the mixer 26 and reference signal generator in the DSP 20 of Horner

et.al. are used merely to phase lock onto a pilot signal portion of the FM composite signal. Those components are not used “to produce a digital a digital representation of downconverted in-phase and quadrature components” as recited in independent Claim 1 of the present application.

Second, neither Horner et al., nor the generally available art at the time of Applicant’s invention, provide any suggestion or motivation to modify the in-phase and quadrature components of the alleged admitted prior art to perform the “processing” operation recited in independent Claim 1. Indeed, if the phase lock loop of the DSP 20 of Horner et al. were used to modify the digital intermediate frequency downconversion circuit claimed in Claim 1, it would both change the principle of operation of the alleged admitted prior art, and would likely render the alleged admitted prior art unsatisfactory for its intended purpose – either of which forms a basis for prohibiting reliance on the reference to support an obviousness rejection. (See M.P.E.P. § 2143.01).

Third, despite what is asserted in the Office Action, Horner et al. is not within the same technical field of endeavor as the presently claimed invention. Indeed, Applicant respectfully believes that Horner et al. is non-analogous art, and consequently cannot be properly relied on to support the obviousness rejection of independent Claim 1.

Section 2141.01(a) of the M.P.E.P. directs that “[i]n order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.” (quoting *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Horner et al. is directed at decoding an FM composite signal (for FM stereo applications) that includes a pilot signal and first and

second information modulated with a subcarrier. Decoding an FM composite signal having a pilot signal is not within the same field of endeavor as the downconversion process recited in Claim 1. Not only is Horner et al. not within Applicant's field of endeavor, it does not address problems reasonably pertinent to the problems addressed by the presently claimed invention. The problems addressed by Horner et al. relate to decoding composite FM stereo signals, and cannot be properly considered as being reasonably pertinent to the problems addressed by the invention claimed in independent Claim 1 of the present application.

It is also acknowledged in the Office Action that the alleged admitted prior art does not teach or suggest "recombining the digital I and Q components with a reconstruction filter in a manner to be substantially free of image artifacts," as recited in Claim 1 of the present application recites. Nevertheless, it is asserted that the low-pass filter 30 in Horner et al. corresponds to the "reconstruction filter" in Claim 1. Applicant respectfully disagrees. There is no teaching or suggestion that the low-pass filter 30 in Horner et al. may operate to recombine digital I and Q components, or that it may be modified to perform such a function. Accordingly, the low-pass filter 30 in Horner et al. cannot be properly characterized as a "reconstruction filter", and the low pass filter's 30 operation cannot be properly characterized as teaching or suggesting "recombining the digital representation of the downloaded in-phase and quadrature components with a reconstruction filter in a manner to obtain a baseband signal...."

For at least the foregoing reasons, Applicant respectfully believes that the § 103 rejection of independent Claim 1, as being obvious over alleged admitted prior art in

view of Horner et al. and Stevenson, cannot be properly maintained. Applicant requests, therefore, that the § 103 rejection of independent Claim 1 be withdrawn.

Substantially the same reasons as to why independent Claim 1 of the present application are allowable over the alleged prior art apply to the rejection of independent Claim 3. Applicant requests, therefore, that the § 103 rejection of independent Claim 3 also be withdrawn. Dependent Claim 2 depends from independent Claim 1, and dependent Claims 4 and 5 depend from independent Claim 3. Accordingly, these dependent Claims 2, 4 and 5 derive patentability for depending on what appears to be allowable base claims. Applicant requests, therefore, that the § 103 rejections of dependent Claims 2, 4 and 5 also be withdrawn.

Claim Rejection – 35 U.S.C. § 103, Claim 6

In the Office Action, independent Claim 6 was rejected as being obvious over alleged admitted prior art, in view of Horner et al. and Stevenson. For the following reasons Applicant respectfully disagrees.

Independent Claim 6 of the present application claims a “method of image rejection processing of a received RF signal” comprising “performing downconversion of the received RF signal to produce analog I and Q signals” and “for each of the analog I signal and the analog Q signal: oversampling the analog signal..., producing a periodic oversampled digital reference signal, and logically combining the digital signal with the reference signal to produce an image-canceled baseband signal.”

Applicant respectfully submits that neither Horner et al. nor the generally available art at the time of Applicant’s invention, provides any suggestion or motivation

to combine its teachings with the alleged admitted prior art. Indeed, there is absolutely no suggestion or motivation in Horner et al., or the generally available art at the time of Applicant's invention, indicating that the teachings in Horner et al. could be applied in a downconversion process that utilizes I and Q downconversion paths, or for "each of the analog I signal and the analog Q signal" performing the "oversampling", "producing", and/or "logically combining" operations of Claim 6. Moreover, similar to that explained above in responding to the rejections of Claims 1 and 3, Horner et al. is non-analogous art, and modifying the alleged admitted prior art by Horner et al. would impermissibly change the principle of operation and likely render the alleged admitted prior art apparatus unsuitable for its intended use.

For at least the foregoing reasons, Applicant respectfully believes that the § 103 rejection of independent Claim 6 cannot be properly maintained. Applicant requests, therefore, that the § 103 rejection of independent Claim 6 be withdrawn. Dependent Claim 7 depends from independent Claim 6. Accordingly, it derives patentability for at least the same reasons independent Claim 6 does. Applicant requests, therefore, that the § 103 rejection of dependent Claim 7 also be withdrawn.

Claim Rejection – 35 U.S.C. § 103(a), Claim 8

In the Office Action, independent Claim 8 was rejected for allegedly being obvious over alleged admitted prior art, in view of Horner et al., Stevenson, and further in view of Jaffe and Baltus et al. For the following reasons Applicant respectfully disagrees.

First, the cited prior art, specifically Baltus et al., does not, as is asserted in the Office Action, disclose “weighting resistances in series with the outputs of the logic gates for combining the digital representation of the downconverted in-phase and quadrature components according to value in an in-phase signal and in a quadrature phase signal.” Not only are the resistors 30-33 in Baltus et al. not “in series with...logic gates”, as Claim 8 recites, the resistors 30-33 do not operate to combine “in-phase and quadrature components.” To the contrary, the resistor 30-33 actually operate to split I and Q signals into four IF signals, IF1, IF2, IF3 and IF4. Finally, there is no indication in Baltus et al. that the resistors 30-33 are “weighting” resistors. In fact, there is nothing in Baltus et al. that teaches or suggests that the resistances of resistors 30-33 have anything but the same value. Accordingly for at least these additional reasons, the § 103 rejection of independent Claim 8 cannot be properly maintained.

Fourth, as indicated above in response to the rejections of independent Claims 1, 3 and 6, Horner et al. is not within the same technical field of endeavor as the presently claimed invention, and is, therefore, non-analogous art. Section 2141.01(a) of the M.P.E.P. directs that “[i]n order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.” (quoting *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Not only is Horner et al. not within Applicant’s field of endeavor, it does not address problems reasonably pertinent to the problems addressed by the presently claimed invention. The problem addressed by Horner et al. relates to decoding an FM composite signal (for FM stereo applications) that includes a pilot signal and first and

second information modulated with a subcarrier. That problem cannot be properly considered as being reasonably pertinent to the problems addressed by the invention claimed in independent Claim 8 of the present application.

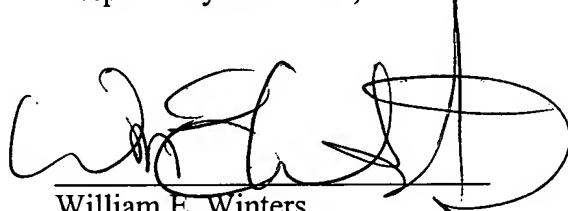
For at least the foregoing reasons, Applicant respectfully believes that the § 103 rejection of independent Claim 8 cannot be properly maintained. Applicant requests, therefore, that the rejection be withdrawn. Claims 9 and 10 depend from independent Claim 8, and derive patentability for depending on what appears to be an allowable base claim. Applicant requests, therefore, that the § 103 rejections of dependent Claims 9 and 10 also be withdrawn.

CONCLUSION

For at least the foregoing reasons, Applicant believes all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner has any further questions or comments concerning the amendments made herein, he is encouraged to telephone the undersigned at 408-282-1857.

Respectfully submitted,



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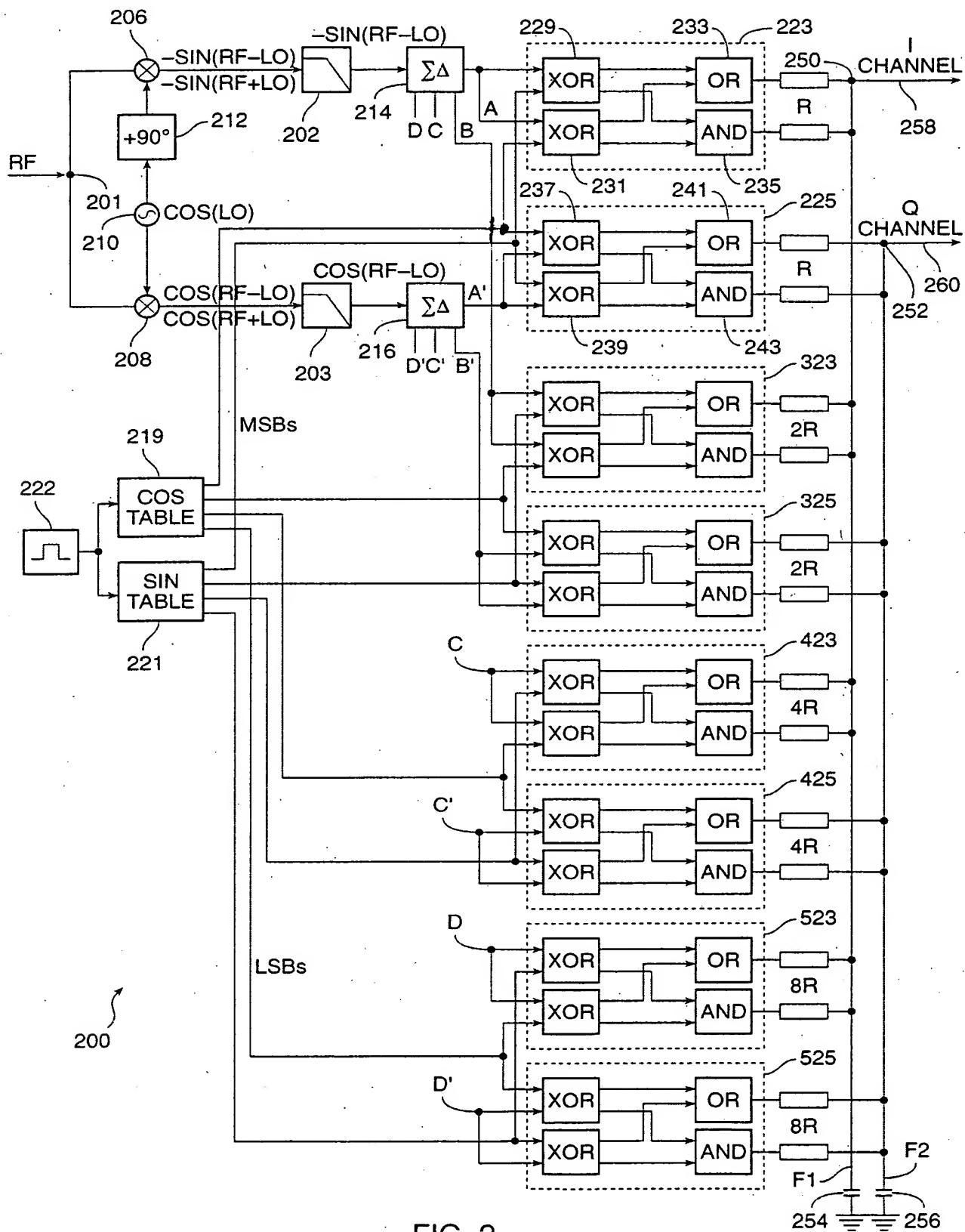


FIG. 2